

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

REC'D 28 JUN 2005

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Applicant's or agent's file reference IN/PA-501	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/IN 03/00068	International filing date (day/month/year) 24.03.2003	Priority date (day/month/year) 24.03.2003
International Patent Classification (IPC) or both national classification and IPC A23L1/064		
Applicant COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH et .		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 21.10.2004	Date of completion of this report 29.06.2005
Name and mailing address of the International preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Vuillamy, V Telephone No. +31 70 340-3504 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/IN 03/00068**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-5 as originally filed

Claims, Numbers

1-20 received on 12.04.2005 with letter of 07.04.2005

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

5. ☒ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

see separate sheet

6. Additional observations, if necessary:

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-15, 18-20
	No: Claims	16, 17
Inventive step (IS)	Yes: Claims	1-13
	No: Claims	14-20
Industrial applicability (IA)	Yes: Claims	1-20
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/IN 03/00068

Re Item I

Basis of the report

This report has been established as if some of the amendments had not been made, since they have been considered to go beyond the disclosure as file. The amendment concerned is:

claim 15: 'wherein said jam contains ... *40-60% moisture content*'. This feature is originally disclosed (cf. p.2, l.13-15) to characterize the custard apple pulp after dehydration, not the jam. There is no basis for such a moisture content applied to the jam.

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following document:

D1: Indian Horticulture, 19(3), 1974

V.1. The document D1 is regarded as being the closest prior art to the subject-matter of claims 1 and 14-20 and discloses (cf. p.19 to p.20, l.2) the use of custard apple in jam. Since D1 does not mention any process nor ingredients, it is considered that the jam is made by the customary steps of pulping and boiling, and with the customary ingredients for jam (at least fruit pulp and sugar).

The subject-matter of claim 1 differs from the disclosure of D1 in that the custard apple pulp is dehydrated at a temperature below 55°C.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

V.2. The problem to be solved by the present invention may be regarded as the provision of an improved custard apple jam free of discoloration, bitterness and off-flavor, and having a higher shelf-life.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons: although custard apple jam is known from D1 (presumably obtained by a conventional process), the step of dehydrating the pulp at low temperature before the boiling step is not disclosed nor suggested in the available prior art. This step provides a product having different properties with regard to discoloration, bitterness or off-flavor.

Claims 2-13 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

V.3. The subject-matter of 16 and 17 is considered as anticipated by D1: any jam comprises sugar and fruit pulp.

Remark In product-by-process claims 14-20, the features 'having a higher shelf-life', without discoloration, bitterness and off-flavor', 'shelf-stable for not less than 6 months' are not taken into

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account because they are of subjective and/or relative nature, or merely amount to the result to be achieved (Art.6 PCT). In addition, the process of claim 1 is not restricted to any specific dehydrating step (although the description mentions removing 40-60% of the moisture), and therefore the products of claims 14-20 encompass jam obtained possibly with a very limited dehydrating step, and therefore similar to a custard apple jam according to D1.

V.4. The subject-matter of claims 14, 15 and 18-20 is not disclosed in D1, and differs by the ingredients mentioned. These ingredients are however commonly used in jam preparations, and the skilled person would therefore regard it as normal to include these ingredients in the product described in document D1 in order to solve the problem posed. The subject-matter of claims 14, 15 and 18-20 can therefore not be considered as involving an inventive step (Article 33(3) PCT) .

12.04.2005

Claims:

(43)

1. A process for preparing a custard apple jam having higher shelf life and without discoloration, bitterness, and off-flavor, said process comprising steps of (a) mixing a sweetening agent with custard apple pulp; (b) partially dehydrating the mixture of step (a) below the temperature of 55°C; (c) adding additives such as sweetening agent, preservatives, setting agent and other food additives; and (d) boiling the mixture of step (c) at a temperature between 90 – 100°C and cooling the mixture to obtain the jam.
2. A process as claimed in claim 1, said process comprising the steps of:
 - (a) obtaining the custard apple pulp;
 - (b) mixing the custard apple pulp of step (a) with a sweetening agent in the ratio of 1 : 0.5 to 1 : 1 to obtain a pulp mixture;
 - (c) partially dehydrating the pulp mixture of step (b) under vacuum below a temperature of 55°C to obtain a partially dehydrated pulp mixture;
 - (d) adding a preheated syrup containing a sweetening agent, a setting agent and a flavoring agent to the partially dehydrated pulp mixture of step (c);
 - (e) boiling the mixture of step (d) till the total soluble solids reaches to 68°B to 70°B;
 - (f) allowing the mixture of step (e) to cool to the room temperature, and
 - (g) adding permitted food preservatives to the range of 50 ppm to 250 ppm to obtain the custard apple jam.
3. A process as claimed in claim 2 wherein in step (a), the custard apple pulp is obtained from fresh ripe custard apple fruits.
4. A process as claimed in claim 2 wherein in step (a), the custard apple pulp is obtained by scooping the pulp from ripe fruits using a pulper followed by separating the seeds from the same.
5. A process as claimed in claim 2 wherein in step (b), the sweetening agent used is sugar.
6. A process as claimed in claim 2 wherein in step (c), the pulp mixture is partially dehydrated under vacuum of 0.2 to 0.8 Kgcm⁻².

AMENDED CLAIMS (article 34)

AMENDED SHEET

7. A process as claimed in claim 2 wherein in step (c), the pulp mixture is partially dehydrated to remove 40 to 60% moisture content.
8. A process as claimed in claim 2 wherein in step (d), the sweetening agent used is sugar.
9. A process as claimed in claim 2 wherein in step (d), the setting agent used is pectin. —
10. A process as claimed in claim 2 wherein in step (d), the flavoring agent used is citric acid.
11. A process as claimed in claim 2 wherein in step (d), the partially dehydrated pulp is mixed with 10 to 30% by wt. of sugar, 0.7 to 1.0 % by wt. of pectin and 0.4 to 0.55 % by wt. of citric acid.
12. A process as claimed in claim 2 wherein in step (e), the mixture is boiled at a temperature ranging between 95°C to 98°C.
13. A process as claimed in claim 2 wherein in step (g), the permitted food preservative is sodium benzoate.
14. A custard apple jam having higher shelf life and without discoloration, bitterness and off-flavor obtained by the process as claimed in claim 1, wherein said jam comprises custard apple pulp along with adequate quantity of a sweetening agent, a setting agent, a flavoring agent, moisture content and a food preservative.
15. A custard apple jam having higher shelf life and without discoloration, bitterness and off-flavor obtained by the process as claimed in claim 1, wherein said jam contains 35-55 % by wt. of custard apple pulp, 45 to 60 % by wt. of a sweetening agent, 0.5 to 1.5 % by wt. of a setting agent, 0.25 to 1.0 % by wt. of a flavoring agent, 40-60% moisture content and 0.01 to 0.05 % by wt. of a food preservative.
16. A custard apple jam having higher shelf life and without discoloration, bitterness and off-flavor obtained by the process as claimed in claim 1, wherein said jam is shelf stable at ambient temperature for a period of not less than 6 months.

AMENDED CLAIMS (article 34)

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17. A custard apple jam having higher shelf life and without discoloration, bitterness and off-flavor obtained by the process as claimed in claim 1, wherein the sweetening agent is sugar
18. A custard apple jam having higher shelf life and without discoloration, bitterness and off-flavor obtained by the process as claimed in claim 1, wherein the setting agent is pectin.
19. A custard apple jam having higher shelf life and without discoloration, bitterness and off-flavor obtained by the process as claimed in claim 1, wherein the flavoring agent is citric acid.
20. A custard apple jam having higher shelf life and without discoloration, bitterness and off-flavor obtained by the process as claimed in claim 1, wherein the food preservative is sodium benzoate.

AMENDED CLAIMS (article 34)

AMENDED SHEET